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PSEUDO-SLEEPING ATTITUDE OF THE CANVASBACK

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Pseudo-sleeping Attitude of the Canvasback.—While studying the feeding behavior of diving ducks in southwestern Manitoba, we observed a brood of wild Canvasbacks (*Aythya valisineria*) and a gathering of captive, young Canvasbacks assuming a pseudo-sleeping attitude. This is a "sleeping" posture except that the eyes are open and the birds alert, prepared to avoid the cause of a disturbance.

Makkluk (*Ardea*, 25, 1936:1-60) first described the pseudo-sleeping attitude (PSA) in the Avocet (*Recurvirostra avocetta*) and interpreted it to be a withdrawal made by the Avocet when a stimulus through an encounter with another bird was not strong enough to elicit a flight or attack response. Pseudo-sleeping has also been observed in the Oystercatcher, *Hematopus ostralegus* (Makkluk, *Ardea*, 31, 1942:23-75; Edwards, Hosking, and Smith, *Brit. Birds*, 41, 1948:236-243); Turnstone, *Arenaria interpres* (Bereman, *Acta Zool. Fenn.*, 47, 1946:1-151); Common Sandpiper, *Tringa hypoleucos* (Poulsen, *Vår Fagelværd*, 9, 1950:4-10); Snow Bunting, *Plectrophenax nivalis* (Timbergen, *Trans. Linn. Soc. N.Y.*, 5, 1949:1-92); and the Ruddy Duck, *Oxyura jamaicensis* (Hays, 1962, pers. comm.). These studies report pseudo-sleeping only in sexual and/or hostile situations.

Timbergen (*Quart. Rev. Biol.*, 17, 1952:1-32) has written a classic discussion of derived activities, including the irrelevant acts (foraging, comfort movements, nest building movements, sexual movements, sleep, and so forth) to which his term "displacement activity" has been applied. Thus, the pseudo-sleeping attitude described by Makkluk (1936, *op. cit.*; 1942, *op. cit.*) became generally known as displacement sleeping.

The model of a displacement activity is a behavioral act performed out of context by a bird torn between two opposing motivations and behaving in such a manner because of inability to express itself in any other way. The works of Timbergen (*Zeit. f. Tierpsych.*, 4, 1940:1-40); Wild (1942:39-98; *Sympos. Soc. Exp. Biol.*, 4, 1950:305-312; *The Study of Instinct*, Oxford Univ. Press, Oxford, 1951; 1952, *op. cit.*; *The Herring Gull's World*, Collins, London, 1953; *Social Behavior in Animals*, Methuen and Co., Ltd., London, 1953), Moynihan (*Behaviour*, 5, 1953:58-80; *Auk*, 72, 1955:240-246), and Makkluk (1936, *op. cit.*; 1942, *op. cit.*) should be consulted for more thorough discussions of the displacement activity theory, misinterpretation of observations, and the restricted usage of the term "displacement." More recent considerations of this phenomenon are those of van Iersel and Bol (*Behaviour*, 13, 1958:1-28), Sevenster (*Behaviour Suppl.* IX, 1961:178pp.), and Fraser-Rowell (*Animal Behaviour*, 9, 1961:38-63).

Our observation of pseudo-sleeping in the wild was made at a pothole lake, 8.3 miles north of Rapid City, Manitoba, at 7:00 p.m. on August 1, 1961. A brood of 12 Canvasback ducklings (6 to 7 weeks old), and an adult female Redhead (*Aythya americana*) were observed diving for food. We watched their feeding behavior from a distance of 30 yards for 15 minutes. In an attempt to crawl to the concealment of an alder-willow clump 50 feet from the birds, our movements were detected. We remained behind the cover, but the ducks became uneasy and ceased feeding. After approximately one minute of trailing water and gentle circling, the entire brood went into a sleeping posture with the bill tucked under the left scapulars. The eye facing our "hide," however, remained open and unblinking, as in an alert bird. The brood, as a unit, slowly paddled toward the center of the lake. Within one minute after the ducklings assumed the sleep posture, the female Redhead took flight and abandoned the brood, giving the alarm call. In 7 minutes the ducklings reached the center of the water area, always keeping their right eyes fixed on our place of concealment and maintaining their individual positions within the brood (fig. 1). Three minutes after reaching the center of the lake the ducklings began to assume an alert posture and to swim about. Three minutes later, the first Canvasback dived for food and within 4 additional minutes, 20 minutes after the disturbance, all of the ducklings were actively feeding.

On several other occasions we have noted the assumption of pseudo-sleeping by individual Canvasback ducklings within broods, but never by the entire brood. We were able to make repeated observations of this behavior in captive Canvasbacks held in an outdoor pen at the Delta Waterfowl Research Station. A stream approximately 15 feet wide and 20 feet long, fenced at both ends, provided a suitable water area for 30 young Canvasbacks. During the first few weeks of life, the ducklings failed to assume the attitude when an observer entered the pen or watched without concealing himself. Rather, they would swim rapidly away to the most distant portion of the pen. In a behavior typical for the species, they preferred escape on the water to that overland. By the time the young Canvasbacks were 3 to 6 weeks old, they began to assume the pseudo-sleeping attitude observed in the wild.



Fig. 1. Brood of wild Canvasback ducklings in pseudo-sleeping attitude.

Most often, the head was turned over the right shoulder, with the bill tucked under the left scapulars. Only rarely was the opposite position seen, with the bill placed under the right scapulars. In this position, the Canvasbacks would watch the observer until he made a threatening motion or sound, at which they would become more typically alert, with heads up, and move off. Often, in a wind or breeze, the ducklings would swing in a tight circle while in the sleeping posture, apparently watching the observer.

It is unlikely that pseudo-sleeping, as we have observed it, would be encountered except under the stimulus of a very slight and unfamiliar disturbance which would cause the ducklings to become uneasy and wary without eliciting true fright and escape. Makkink's (*op cit.*, 1936) term, "Pseudo-sleeping Attitude," more adequately describes the behavior observed by us than does the phrase "displacement sleeping," especially since the birds are not truly asleep.

Similar behavior has been seen in the Ruddy Duck by Hays (*op. cit.*), who has observed and photographed single males putting their bills under their wings, in a sleep-like posture, when passing paired male Ruddy Ducks, Coots (*Fallica americana*), and Pied-billed Grebes (*Podilymbus podiceps*). A single male failing to assume this posture, or turn his head away, most likely will be chased. Miss Hays believes that the assumption of the sleeping posture, or turning the head away, hides the bright blue bill and white cheek and makes the male less conspicuous. The obvious sociological implications of this behavior in the Ruddy Duck are consistent with those of pseudo-sleeping observed in other species but would seem to have a very different motivation than the behavior of the Canvasbacks observed by us. In both situations the ducks are faced with the alternatives of (1) fleeing from a possible attack, or (2) assuming a posture less inviting to attack while withdrawing from the threat. We believe that pseudo-sleeping may exist among other anatids under stimuli of moderate threat and suggest that ornithologists be alerted to the opportunity for additional observations.

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The responsibility for interpretation remains our own, however. Financial aid was provided by the North American Wildlife Foundation, through the Delta Waterfowl Research Station, and the Frank M. Chapman Fund of the American Museum of Natural History. The illustration was kindly prepared by Mr. Peter Ward of Delta, Manitoba.—GEOFF. W. CONSWELL, *Department of Forestry and Wildlife, Virginia Polytechnic Institute, Blacksburg, Virginia*, and JAMES C. BARTONER, *Department of Wildlife Management, The University of Wisconsin, Madison, Wisconsin, December 13, 1962.*